



SEQUENCE LISTING

<110> LEFF, MITCHELL E.
KLOETZER, WILLIAM S.
NAKAMURA, TAKEHIKO

<120> GAMMA-1 AND GAMMA-3 ANTI-HUMAN CD23 MONOCLONAL ANTIBODIES AND USE
THEREOF AS THERAPEUTICS

<130> 037003-0275470

<140> 09/019,441

<141> 1998-02-05

<150> 08/803,085

<151> 1997-02-20

<160> 39

<170> PatentIn Ver. 2.1

<210> 1

<211> 390

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Mature peptide is derived from Old
World Monkey (macaque); leader sequence is an artificial sequence to
facilitate cloning

<220>

<221> misc_feature

<222> (1)..(57)

<223> leader sequence

<220>

<221> mat_peptide

<222> (58)..(390)

<220>

<221> CDS

<222> (1)..(390)

<400> 1

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| atg gcc tgg act ctg ctc ctc gtc acc ctc ctc act cag ggc aca gga | 48 |
| Met Ala Trp Thr Leu Leu Leu Val Thr Leu Leu Thr Gln Gly Thr Gly | |
| -15 -10 -5 | |

| | |
|---|----|
| tcc tgg gct cag tct gcc ccg act cag cct ccc tct gtg tct ggg tct | 96 |
| Ser Trp Ala Gln Ser Ala Pro Thr Gln Pro Pro Ser Val Ser Gly Ser | |
| -1 1 5 10 | |

| | |
|---|-----|
| cct gga cag tcg gtc acc atc tcc tgc act gga acc agc gat gac gtt | 144 |
| Pro Gly Gln Ser Val Thr Ile Ser Cys Thr Gly Thr Ser Asp Asp Val | |
| 15 20 25 | |

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ggt ggt tat aac tat gtc tcc tgg tac caa cac cac cca ggc aaa gcc 192
Gly Gly Tyr Asn Tyr Val Ser Trp Tyr Gln His His Pro Gly Lys Ala
30 35 40 45

ccc aaa ctc atg att tat gat gtc gct aag cgg gcc tca ggg gtc tct 240
Pro Lys Leu Met Ile Tyr Asp Val Ala Lys Arg Ala Ser Gly Val Ser
50 55 60

gat cgc ttc tct ggc tcc aag tct ggc aac acg gcc tcc ctg acc atc 288
Asp Arg Phe Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile
65 70 75

tct ggg ctc cag gct gag gac gag gct gat tat tac tgt tgt tca tat 336
Ser Gly Leu Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Cys Ser Tyr
80 85 90

aca acc agt agc act ttg tta ttc gga aga ggg acc cgg ttg acc gtc 384
Thr Thr Ser Ser Thr Leu Leu Phe Gly Arg Gly Thr Arg Leu Thr Val
95 100 105

cta ggt 390
Leu Gly
110

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<210> 2
<211> 130
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Mature peptide is derived from Old World Monkey (macaque); leader sequence is an artificial sequence to facilitate cloning

<400> 2

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Met Ala Trp Thr Leu Leu Leu Val Thr Leu Leu Thr Gln Gly Thr Gly
-15 -10 -5

Ser Trp Ala Gln Ser Ala Pro Thr Gln Pro Pro Ser Val Ser Gly Ser
-1 1 5 10

Pro Gly Gln Ser Val Thr Ile Ser Cys Thr Gly Thr Ser Asp Asp Val
15 20 25

Gly Gly Tyr Asn Tyr Val Ser Trp Tyr Gln His His Pro Gly Lys Ala
30 35 40 45

Pro Lys Leu Met Ile Tyr Asp Val Ala Lys Arg Ala Ser Gly Val Ser
50 55 60

Asp Arg Phe Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile
65 70 75

Ser Gly Leu Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Cys Ser Tyr
80 85 90

Thr Thr Ser Ser Thr Leu Leu Phe Gly Arg Gly Thr Arg Leu Thr Val
95 100 105

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Leu Gly
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<210> 3
<211> 423
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Mature peptide is derived from Old World Monkey (macaque); leader sequence is an artificial sequence to facilitate cloning

<220>
<221> misc_feature
<222> (1)..(57)
<223> leader sequence

<220>
<221> mat_peptide
<222> (58)..(423)

<220>
<221> CDS
<222> (1)..(423)

<400> 3

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| atg | aaa | cac | ctg | tgg | ttc | ttc | ctc | ctc | ctg | gtg | gca | gct | ccc | aga | tgg | 48 |
| Met | Lys | His | Leu | Trp | Phe | Phe | Leu | Leu | Leu | Val | Ala | Ala | Pro | Arg | Trp | |
| | | | | -15 | | | | | -10 | | | | | -5 | | |
| gtc | ctg | tcc | cag | ctg | cag | ctg | cag | gag | tgc | ggc | cca | gga | gtg | gtg | aag | 96 |
| Val | Leu | Ser | Gln | Leu | Gln | Leu | Gln | Glu | Ser | Gly | Pro | Gly | Val | Val | Lys | |
| | -1 | 1 | | | | 5 | | | | | | 10 | | | | |
| cct | tgc | gag | acc | ctg | tcc | ctc | acc | tgc | gct | gtc | tct | ggg | ggc | tct | gtc | 144 |
| Pro | Ser | Glu | Thr | Leu | Ser | Leu | Thr | Cys | Ala | Val | Ser | Gly | Gly | Ser | Val | |
| | 15 | | | | | 20 | | | | | 25 | | | | | |
| agc | agt | agt | aac | tgg | tgg | acc | tgg | atc | cgc | cag | ccc | cca | ggg | aag | gga | 192 |
| Ser | Ser | Ser | Asn | Trp | Trp | Thr | Trp | Ile | Arg | Gln | Pro | Pro | Gly | Lys | Gly | |
| | 30 | | | 35 | | | | 40 | | | | | | 45 | | |
| ctg | gag | tgg | att | gga | cgt | atc | tct | ggg | agt | ggg | ggg | gcc | acc | aac | tac | 240 |
| Leu | Glu | Trp | Ile | Gly | Arg | Ile | Ser | Gly | Ser | Gly | Gly | Ala | Thr | Asn | Tyr | |
| | | | | 50 | | | | 55 | | | | | | 60 | | |
| aac | ccg | tcc | ctc | aag | agt | cga | gtc | atc | att | tca | caa | gac | acg | tcc | aag | 288 |
| Asn | Pro | Ser | Leu | Lys | Ser | Arg | Val | Ile | Ile | Ser | Gln | Asp | Thr | Ser | Lys | |
| | | | 65 | | | | 70 | | | | | 75 | | | | |
| aac | cag | ttc | tcc | ctg | aac | ctg | aac | tct | gtg | acc | gcc | gcg | gac | acg | gcc | 336 |
| Asn | Gln | Phe | Ser | Leu | Asn | Leu | Asn | Ser | Val | Thr | Ala | Ala | Asp | Thr | Ala | |
| | | 80 | | | | 85 | | | | | 90 | | | | | |
| gtg | tat | tac | tgt | gcc | aga | gat | tgg | gcc | caa | ata | gct | gga | aca | acg | cta | 384 |
| Val | Tyr | Tyr | Cys | Ala | Arg | Asp | Trp | Ala | Gln | Ile | Ala | Gly | Thr | Thr | Leu | |
| | 95 | | | | | 100 | | | | | 105 | | | | | |

ggc ttc tgg ggc cag gga gtc ctg gtc acc gtc tcc tca
Gly Phe Trp Gly Gln Gly Val Leu Val Thr Val Ser Ser
110 115 120

423

<210> 4
<211> 141
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Mature peptide is derived from Old World Monkey (macaque); leader sequence is an artificial sequence to facilitate cloning

<400> 4

Met Lys His Leu Trp Phe Phe Leu Leu Leu Val Ala Ala Pro Arg Trp
-15 -10 -5
Val Leu Ser Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Val Val Lys
-1 1 5 10
Pro Ser Glu Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Val
15 20 25
Ser Ser Ser Asn Trp Trp Thr Trp Ile Arg Gln Pro Pro Gly Lys Gly
30 35 40 45
Leu Glu Trp Ile Gly Arg Ile Ser Gly Ser Gly Gly Ala Thr Asn Tyr
50 55 60
Asn Pro Ser Leu Lys Ser Arg Val Ile Ile Ser Gln Asp Thr Ser Lys
65 70 75
Asn Gln Phe Ser Leu Asn Leu Asn Ser Val Thr Ala Ala Asp Thr Ala
80 85 90
Val Tyr Tyr Cys Ala Arg Asp Trp Ala Gln Ile Ala Gly Thr Thr Leu
95 100 105
Gly Phe Trp Gly Gln Gly Val Leu Val Thr Val Ser Ser
110 115 120

<210> 5
<211> 387
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Mature peptide is derived from Old World Monkey (macaque); leader sequence is an artificial sequence to facilitate cloning

<220>
<221> misc_feature
<222> (1)..(66)
<223> leader sequence

<220>

<221> mat_peptide
<222> (67)..(387)

<220>
<221> CDS
<222> (1)..(387)

<400> 5

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|---|-----|
| atg gac atg agg gtc ccc gct cag ctc ctg ggg ctc ctt ctg ctc tgg | 48 |
| Met Asp Met Arg Val Pro Ala Gln Leu Leu Gly Leu Leu Leu Trp | |
| -20 -15 -10 | |
| ctc cca ggt gcc aga tgt gac atc cag atg acc cag tct cca tct tcc | 96 |
| Leu Pro Gly Ala Arg Cys Asp Ile Gln Met Thr Gln Ser Pro Ser Ser | |
| -5 -1 1 5 10 | |
| ctg tct gca tct gta ggg gac aga gtc acc atc act tgc agg gca agt | 144 |
| Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser | |
| 15 20 25 | |
| cag gac att agg tat tat tta aat tgg tat cag cag aaa cca gga aaa | 192 |
| Gln Asp Ile Arg Tyr Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys | |
| 30 35 40 | |
| gct cct aag ctc ctg atc tat gtt gca tcc agt ttg caa agt ggg gtc | 240 |
| Ala Pro Lys Leu Leu Ile Tyr Val Ala Ser Ser Leu Gln Ser Gly Val | |
| 45 50 55 | |
| cca tca agg ttc agc ggc agt gga tct ggg aca gag ttc act ctc acc | 288 |
| Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr | |
| 60 65 70 | |
| gtc agc agc ctg cag cct gaa gat ttt gcg act tat tac tgt cta cag | 336 |
| Val Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln | |
| 75 80 85 90 | |
| gtt tat agt acc cct cgg acg ttc ggc caa ggg acc aag gtg gaa atc | 384 |
| Val Tyr Ser Thr Pro Arg Thr Phe Gly Gln Gly Thr Lys Val Glu Ile | |
| 95 100 105 | |
| aaa | 387 |
| Lys | |

<210> 6
<211> 129
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Mature peptide is derived from Old World Monkey (macaque); leader sequence is an artificial sequence to facilitate cloning

<400> 6

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|---|
| Met Asp Met Arg Val Pro Ala Gln Leu Leu Gly Leu Leu Leu Leu Trp |
| -20 -15 -10 |
| Leu Pro Gly Ala Arg Cys Asp Ile Gln Met Thr Gln Ser Pro Ser Ser |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| -5 | -1 | 1 | | 5 | | 10 | | | | | | | | | |
| Leu | Ser | Ala | Ser | Val | Gly | Asp | Arg | Val | Thr | Ile | Thr | Cys | Arg | Ala | Ser |
| | | | | 15 | | | | | 20 | | | | | 25 | |
| Gln | Asp | Ile | Arg | Tyr | Tyr | Leu | Asn | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys |
| | | | 30 | | | | | 35 | | | | | 40 | | |
| Ala | Pro | Lys | Leu | Leu | Ile | Tyr | Val | Ala | Ser | Ser | Leu | Gln | Ser | Gly | Val |
| | | 45 | | | | | 50 | | | | | 55 | | | |
| Pro | Ser | Arg | Phe | Ser | Gly | Ser | Gly | Ser | Gly | Thr | Glu | Phe | Thr | Leu | Thr |
| | 60 | | | | | 65 | | | | | 70 | | | | |
| Val | Ser | Ser | Leu | Gln | Pro | Glu | Asp | Phe | Ala | Thr | Tyr | Tyr | Cys | Leu | Gln |
| | 75 | | | | 80 | | | | | 85 | | | | | 90 |
| Val | Tyr | Ser | Thr | Pro | Arg | Thr | Phe | Gly | Gln | Gly | Thr | Lys | Val | Glu | Ile |
| | | | | 95 | | | | | 100 | | | | | 105 | |

Lys

<210> 7
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Mature peptide is derived from Old World Monkey (macaque); leader sequence is an artificial sequence to facilitate cloning

<220>
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<222> (1)..(57)
<223> leader sequence

<220>
<221> mat_peptide
<222> (58)..(411)

<220>
<221> CDS
<222> (1)..(411)

<400> 7

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| atg | gag | ttt | ggg | ctg | agc | tgg | gtt | ttc | ctt | gtt | cct | ctt | ttg | aaa | ggt | 48 |
| Met | Glu | Phe | Gly | Leu | Ser | Trp | Val | Phe | Leu | Val | Pro | Leu | Leu | Lys | Gly | |
| | | | -15 | | | | | -10 | | | | | -5 | | | |
| gtc | cag | tgt | gag | gtg | cag | ctg | gtg | gag | tct | ggg | ggc | ggc | ttg | gca | aag | 96 |
| Val | Gln | Cys | Glu | Val | Gln | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Ala | Lys | |
| | -1 | 1 | | | | | 5 | | | | | 10 | | | | |
| cct | ggg | ggg | tcc | ctg | aga | ctc | tcc | tgc | gca | gcc | tcc | ggg | ttc | agg | ttc | 144 |
| Pro | Gly | Gly | Ser | Leu | Arg | Leu | Ser | Cys | Ala | Ala | Ser | Gly | Phe | Arg | Phe | |
| | 15 | | | | | 20 | | | | | 25 | | | | | |

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acc ttc aat aac tac tac atg gac tgg gtc cgc cag gct cca ggg cag 192
Thr Phe Asn Asn Tyr Tyr Met Asp Trp Val Arg Gln Ala Pro Gly Gln
30 35 40 45

ggg ctg gag tgg gtc tca cgt att agt agt agt ggt gat ccc aca tgg 240
Gly Leu Glu Trp Val Ser Arg Ile Ser Ser Ser Gly Asp Pro Thr Trp
50 55 60

tac gca gac tcc gtg aag ggc aga ttc acc atc tcc aga gag aac gcc 288
Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Glu Asn Ala
65 70 75

aac aac aca ctg ttt ctt caa atg aac agc ctg aga gct gag gac acg 336
Asn Asn Thr Leu Phe Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr
80 85 90

gct gtc tat tac tgt gcg agc ttg act aca ggg tct gac tcc tgg ggc 384
Ala Val Tyr Tyr Cys Ala Ser Leu Thr Thr Gly Ser Asp Ser Trp Gly
95 100 105

cag gga gtc ctg gtc acc gtc tcc tca 411
Gln Gly Val Leu Val Thr Val Ser Ser
110 115

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<210> 8

<211> 137

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Mature peptide is derived from Old World Monkey (macaque); leader sequence is an artificial sequence to facilitate cloning

<400> 8

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Met Glu Phe Gly Leu Ser Trp Val Phe Leu Val Pro Leu Leu Lys Gly
-15 -10 -5

Val Gln Cys Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Ala Lys
-1 1 5 10

Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Arg Phe
15 20 25

Thr Phe Asn Asn Tyr Tyr Met Asp Trp Val Arg Gln Ala Pro Gly Gln
30 35 40 45

Gly Leu Glu Trp Val Ser Arg Ile Ser Ser Ser Gly Asp Pro Thr Trp
50 55 60

Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Glu Asn Ala
65 70 75

Asn Asn Thr Leu Phe Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr
80 85 90

Ala Val Tyr Tyr Cys Ala Ser Leu Thr Thr Gly Ser Asp Ser Trp Gly
95 100 105

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Gln Gly Val Leu Val Thr Val Ser Ser
110 115

<210> 9
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 9
atcacagatc tctcaccatg gacatgaggg tccccgctca g 41

<210> 10
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 10
atcacagatc tctcaccatg aggctccctg ctgag 35

<210> 11
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 11
atcacagatc tctcaccatg gaarccccag ckag 35

<210> 12
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 12
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<210> 13
<211> 32
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 13

ggtgcagcca ccgtagcttt gatytccasc tt

32

<210> 14

<211> 34

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 14

atcacagatc tctcaccatg rcctgstccc ctct

34

<210> 15

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 15

atcacagatc tctcaccatg gcctgggctc ygct

34

<210> 16

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 16

atcacagatc tctcaccatg gcmgtggaycc ctctc

35

<210> 17

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 17

cttgggctga cctaggacgg t

21

<210> 18

<211> 30

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 18

gcgactaagt cgaccatgga ctggacctgg 30

<210> 19
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 19

gcgactaagt cgaccatgaa acacctgtgg 30

<210> 20
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 20

gcgactaagt cgaccatgga gtttgggctg agc 33

<210> 21
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 21

gcgactaagt cgaccatggg gtcaaccgcc atc 33

<210> 22
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
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<400> 22

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<210> 23
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 23

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<210> 24
<211> 31
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 24

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<210> 25
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 25

ggtgctagct gaggagacgg tgaccaggac tccctggccc cagaagccta g 51

<210> 26
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 26

atttaggtga cactata 17

<210> 27
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 27

gttttcccag tcacga

16

<210> 28

<211> 20

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 28

atatacgact cactataggg

20

<210> 29

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

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ccgtcagatc gcctggagac gccca

24

<210> 30

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

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gcagttccag atttcaactg

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<223> Description of Artificial Sequence: Primer

<400> 31

ccaggccact gtcacggctt c

21

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<212> DNA

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<220>
<223> Description of Artificial Sequence: Primer

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cagagctggg tacgtcctca 20

<210> 33
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<220>
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<400> 33

gccccagag gtgctcttgg 20

<210> 34
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 34

acacagaccc gtcgacatgg 20

<210> 35
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 35

gctctcggag gtgctcctgg 20

<210> 36
<211> 30
<212> DNA
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<220>
<223> Description of Artificial Sequence: Primer

<400> 36

acagaccgt cgaccatgga gtttgggctg 30

<210> 37
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 37

ccccttggtg ctagctgagg agacggt

27

<210> 38
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 38

agagagaacg ccaagaacac actgttt

27

<210> 39
<211> 27
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

<400> 39

aaacagtgtg ttcttggcgt tctctct

27